

Ser. No. 10/733,889

## Amendments to the Claims

1. (Currently amended) An apparatus for cleaning a surface within a vessel having a vessel wall separating a vessel exterior from a vessel interior and having a wall aperture, the apparatus comprising:
  - a source of fuel and oxidizer;
  - an igniter for initiating a reaction of the fuel and oxidizer; and
  - an elongate conduit having a first end and a second end and positioned to direct a gas flow of the reacted or reacting fuel and oxidizer through the wall aperture and discharge from the second end and comprising a plurality of segments secured end-to-end against relative movement.
2. (Original) The apparatus of claim 1 wherein:
  - at least three of the conduit segments have lengths along a gas flowpath 1-3m and characteristic internal cross-sectional areas of 0.006-0.3m<sup>2</sup>.
3. (Original) The apparatus of claim 1 wherein:
  - at least three of the segments each comprise:
    - a tubular body having first and second ends; and
    - first and second attachment flanges proximate the first and second ends, respectively.
4. (Original) The apparatus of claim 1 wherein:
  - a nozzle assembly extends at least partially through the vessel wall.
5. (Original) The apparatus of claim 1 wherein:
  - at least one of the segments is an elbow.
6. (Original) The apparatus of claim 1 wherein the conduit consists essentially of three portions:

Ser. No. 10/733,889

an essentially straight first portion;  
an essentially straight second portion upstream of the first portion; and  
a third non-straight portion between the first and second portions.

## 7. (Original) The apparatus of claim 6 wherein:

the second and third portions have essentially similar internal cross-sections; and  
the first portion includes:

a downstream portion having an internal cross-section essentially similar to the  
internal cross-sections of the second and third portions;

an upstream portion having an internal cross-section smaller than the internal  
cross-section of the downstream portion; and

a transition portion having an internal cross-section that transitions from  
essentially similar to the internal cross-section of the upstream portion to essentially  
similar to the internal cross-section of the downstream portion.

## 8. (Original) The apparatus of claim 6 wherein the first and second portions are parallel and offset.

## 9. (Original) The apparatus of claim 6 wherein the first and second portions are oriented at an angle of 20°-160° to each other.

## 10. (Withdrawn) A method for configuring a detonative cleaning apparatus for cleaning surfaces within a vessel, the vessel having a wall, the method comprising:

determining a suitable cross-sectional area for a combustion conduit of the apparatus;

determining a suitable length for the combustion conduit;

determining an appropriate path for the combustion conduit in view of environmental considerations; and

determining an appropriate combination of combustion conduit segments for forming the combustion conduit so as to be routed along the appropriate path.

Ser. No. 10/733,889

11. (Withdrawn) The method of claim 10 wherein:  
the combustion conduit segments are selected from a plurality of pre-established conduit segment configurations.
12. (Withdrawn) The method of claim 10 wherein:  
the combustion conduit segments include at least one straight segment and at least one curved segment.
13. (Withdrawn) The method of claim 10 wherein:  
at least some of the combustion conduit segments each comprise:  
a tubular body having first and second ends; and  
first and second attachment flanges proximate the first and second ends,  
respectively.
14. (Withdrawn) The method of claim 10 further comprising:  
determining an appropriate predetonator configuration.
15. (Withdrawn) The method of claim 10 in combination with:  
generating drawings of the so-configured detonative cleaning apparatus; and  
assembling the so-configured detonative cleaning apparatus.
16. (New) The apparatus of claim 3 wherein:  
a nozzle assembly extends at least partially through the vessel wall.
17. (New) The apparatus of claim 16 wherein:  
at least one of the segments is an elbow.
18. (New) The apparatus of claim 3 wherein:  
at least one of the segments is an elbow.

Ser. No. 10/733,889

19. (New) The apparatus of claim 1 wherein:  
the conduit includes first and second portions parallel and offset.
20. (New) The apparatus of claim 3 wherein:  
a first of the segments is parallel and offset from a second of the segments.